Histological demonstration of honey and nicotine chronic administration effects on lung tissue of adult rats

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Honey is fast gaining support as having many healing properties, possibly due to its antioxidant properties. As for nicotine, an important component in cigarette and tobacco products, it is an addictive substance that has various ill effects towards health. This study investigated the effect of honey and nicotine chronic administration (60 days) on the lungs of adult rats. Twelve Sprague Dawley rats (6–8 weeks old) were randomly divided into a control group (CG) which was force-fed with normal saline (0.9% NaCl) and three other groups which received intramuscular injection (i.m.) of 0.5mg/100g nicotine (NG), force feeding of 1ml/100g honey (HG), and a group receiving both honey and nicotine (HNG) with the same specified dosages. At the end of treatment period, lung tissues of these rats were histologically processed according to H&E staining protocol. The diameter of bronchioles, lumen and thickness of pulmonary arteries were measured using analySIS LifeScience software under light microscopy. Both HG and HNG groups showed significantly wider bronchiolar diameter (176.15±3.47μm and 158.05±4.41μm, respectively) as compared to the other two groups (p<0.05). HG group also displayed significantly wider diameter of pulmonary artery lumen (50.19±2.33μm) than those observed in CG, NG and HNG groups (p<0.05). However, NG significantly demonstrated thicker pulmonary artery wall (25.55±1.36μm) as compared to the other three groups (p<0.05). In conclusion, this study showed that lung tissues were susceptible to honey and nicotine chronic treatments. Hence, further studies should be carried out to elucidate the findings of this research.

Keywords: Honey; Nicotine; Lung; Histology.